

# December 2002 Summary

## El Niño's Wet, Cold Return

The well advertized El Niño pattern, which became moderate during autumn, lived up to its billing in December across the Suncoast. Prodigious rainfall and a general chill made it a December to remember for many. The following article summarizes the rainfall, and to a lesser extent, the cool conditions.

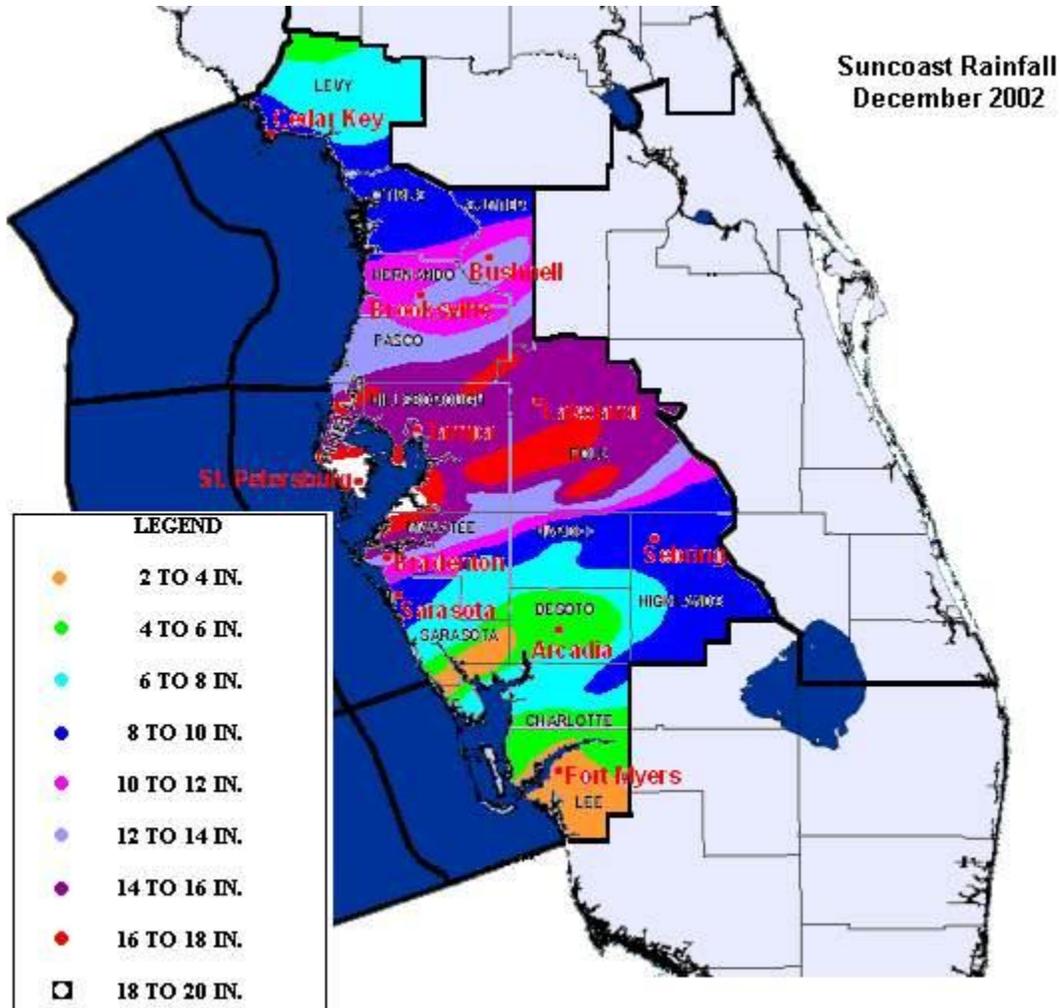
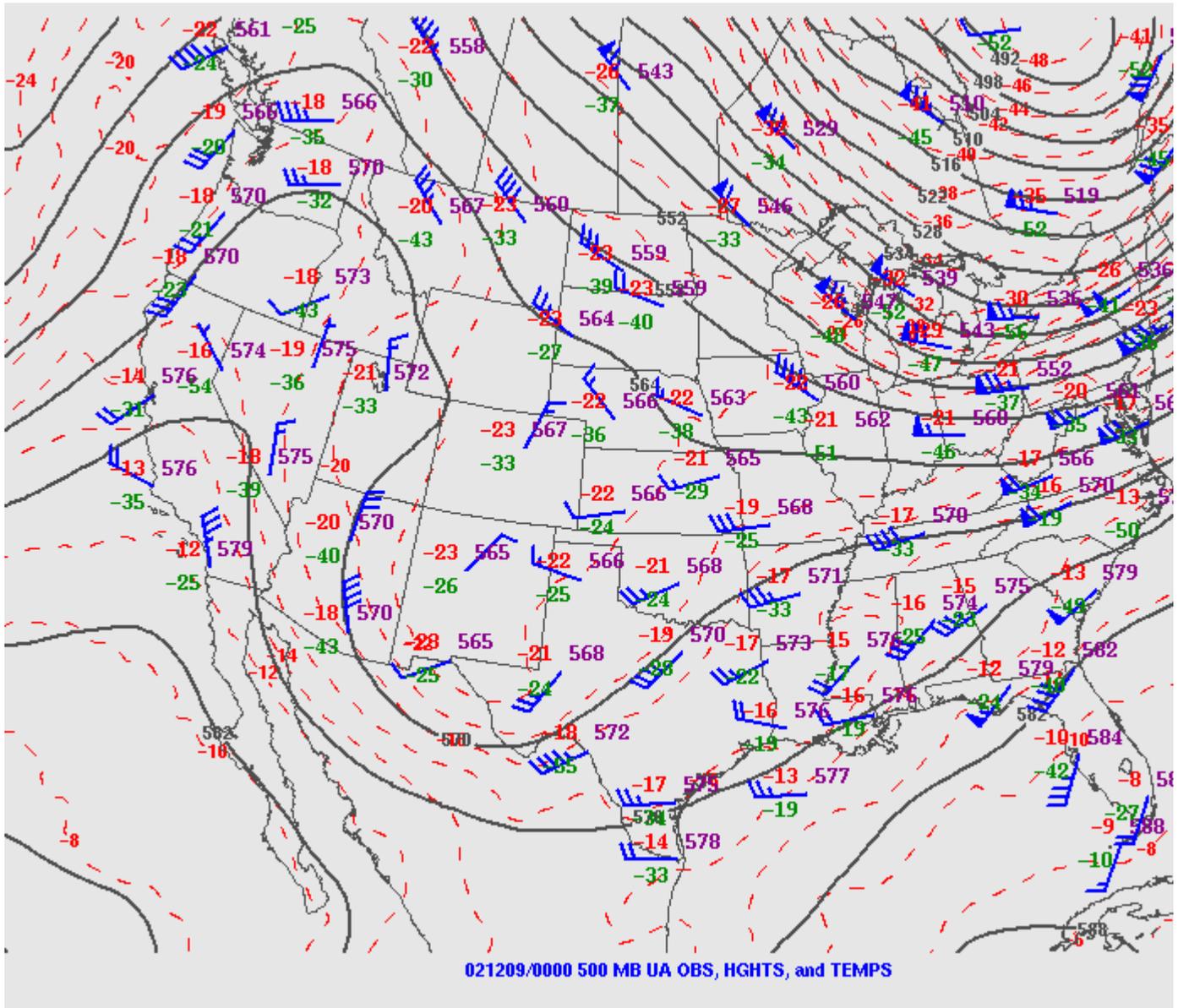


Figure 1. West Central and Southwest Florida Rainfall, December 2002.

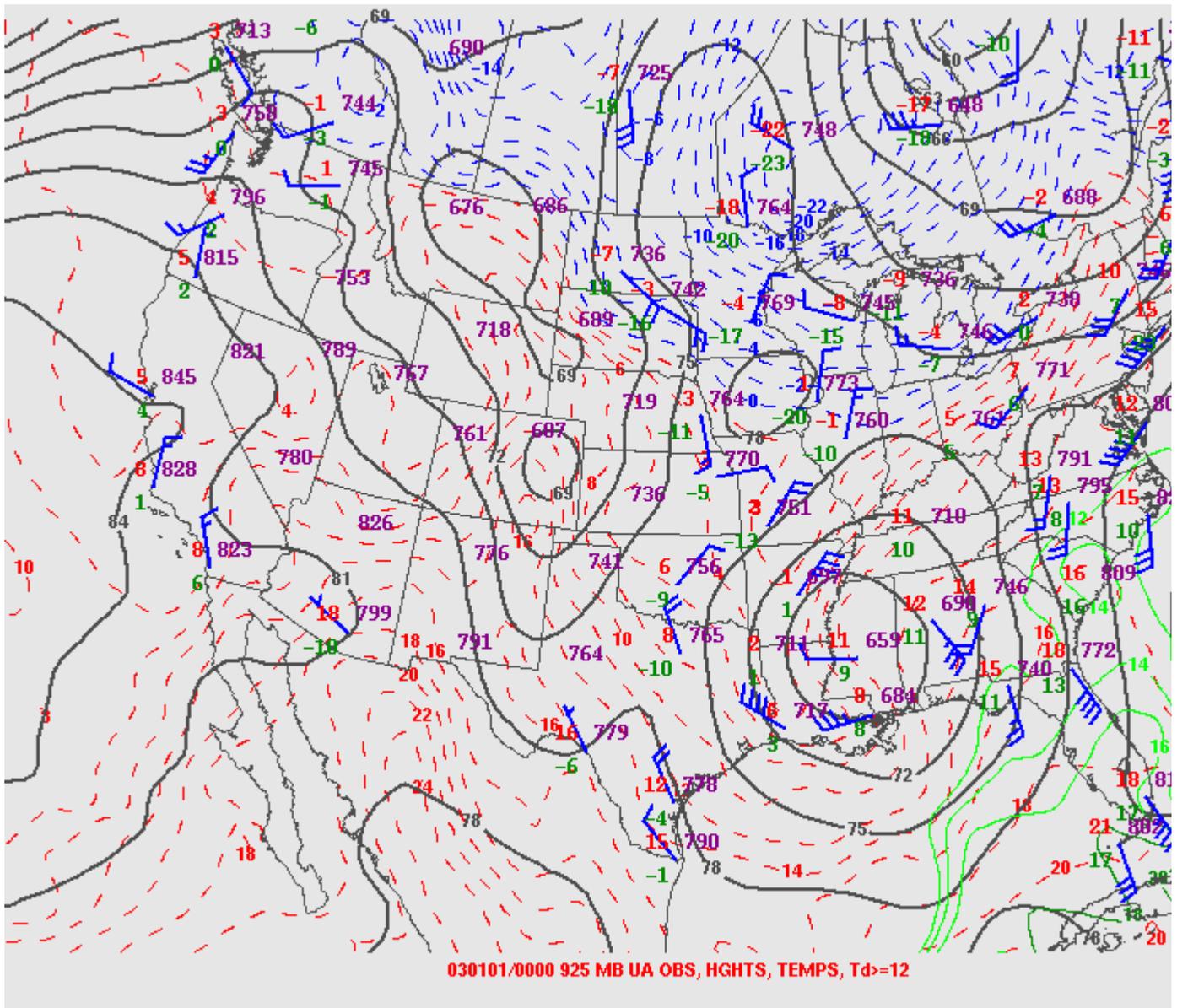
December's Rains came down hard - and often. When the month was over, areal average rainfall across west central Florida between Charlotte and Citrus Counties was more than 12 inches - more than 5 times the monthly average of just over 2 inches. The largest accumulations were noted between Tampa Bay and Lakeland, with more than 20 inches in parts of St. Petersburg (Figure 1).

Showers preceding a cold front produced 1 to locally 2 inches from Tampa and Clearwater north through

southern Pasco County. This was a prelude to the week of rain which followed. On the 9th and early on the 10th, low pressure in the gulf combined with jet stream energy at 15,000 to 25,000 feet (Figure 2) to produce strong lifting of warm humid air over relatively cool surface air. The large scale ascent of tropical moisture dropped generally 3 to 5 inches across most of the area. Just three days later, a similar situation evolved. This time, stratiform rainfall of 1 to 3 inches ahead of a warm front was followed by 1 to 2 inches of torrential tropical rains after the front passed. Weekly rainfall from Hernando County south through the population centers of Lakeland, Tampa Bay, and Sarasota/Bradenton averaged nearly 7 inches, with some areas of Pinellas County receiving nearly 11 inches!



**Figure 2.** 500 mb contour map during the evening of December 9th. Note the impressive southwesterly flow across the northern Gulf ahead of the low in west Texas.



**Figure 3.** 925 mb contour map during the evening of December 31. Strong southerly flow fed abundant tropical moisture into a pre frontal squall line, enhancing rainfall across the northern half of Florida.

The rains took a breather by mid month. However, the combination of prolific rains, low December sun angle, and minimal plant growth produced saturated soil and abundant runoff. Soon after the dousing on the 13th, many rivers in west central Florida surpassed flood stage (Table 1). The flooding was generally minor, but moderate flooding briefly occurred along the Little Manatee near Wimauma (Hillsborough County) and the Anclote near Elfers (Pasco County).

"Stormy Weather" was the theme song for the 2002 holiday period. Deepening low pressure moved from the southeast U.S. to the mid Atlantic region on Christmas Eve and early Christmas Day. The associated cold front surged through the peninsula by dawn Christmas Day, preceded by another round of showers and thunderstorms. Once again, the heaviest rains fell between the Tampa Bay and Lakeland areas, where 2 to 4

inches fell. New Year's Eve provided an appropriate end to such a month; the Tampa Bay, Sarasota/Bradenton, and Lakeland areas were soaked with 3 to 7 inches of rain prior to midnight.

December 2002's rainfall was on par with December 1997, a month incurring El Niño conditions. At most central Florida climatological stations, December 2002 ranked second, close to the immense values of 1997, but well above the third place values. Tables 2, 3, and 4 show the updated top ten wettest Decembers in a few locations.

**Table 1.** Flood Stage Report, NWS Tampa Bay, December 2002. Stage Values are the maximum for the listed basin between December 1 and 31.

River and Station	Flood Stage	Above Flood Stages (Dates)		Crest	
		From	To	Stage (Ft)	Date
Peace R. at Arcadia	11	12/12	12/23	12.45	12/18
Peace R. at Bartow	8	12/11	12/31*	8.70	12/18
Withlacoochee R. at Croom	9	12/27	12/28	9	12/27
Withlacoochee R. at Trilby	12	12/16	12/31*	13.71	12/26
Anclote R. at Elfers	20	12/14	12/16	22.85	12/14
Alafia R. at Lithia	13	12/13	12/17	17.16	12/14
		12/25	12/27	14.40	12/27
Myakka R. at Myakka State Park	7	12/26	12/30	7.21	12/28
Hillsborough R. at Morris Bridge	32	12/16	12/17	32.30	12/16
Hillsborough R. at Zephyrhills	10	12/13	12/17	11.95	12/14
Little Manatee R. at Wimauma	11	12/13	12/16	14.51	12/14
		12/26	12/27	11.39	12/26
Cypress Cr. at Worthington Gardens	8	12/12	12/30	9.59	12/15

**Table 2.** Top 10 wettest Decembers in Tampa, since 1890.

RANK	RAINFALL	YEAR
1	15.57	1997
2	14.10	2002
3	7.36	1899
4	7.04	1972
5	6.66	1951
6	5.99	1996
7	5.52	1976
8	5.17	1967
9	5.14	1921
10	4.93	1986

**Table 3.** Top 10 wettest Decembers in St. Petersburg - Albert Whitted, since 1948.

RANK	RAINFALL	YEAR
1	18.36	2002
2	14.62	1997
3	7.00	1983
4	6.77	1973
5	6.45	1969
6	5.92	1953
7	5.49	1950
8	5.09	1981
9	4.69	1958
10	4.29	1978

**Table 4.** Top 10 wettest Decembers in Sarasota-Bradenton, since 1948.

RANK	RAINFALL	YEAR
1	14.66	1997
2	11.61	2002
3	6.71	1977
4	6.23	1983
5	5.80	1958
6	5.58	1953
7	4.71	1950
8	4.68	1969
9	4.47	1989
10	4.09	1973

**Table 5.** December 2002 Freezes and Frosts, Pasco through Levy Counties.

Freezes and Frosts, North Suncoast	
Date/Type	Temp. Range
2/Freeze	28 to 32

Not only was December exceptionally wet, average temperatures were solidly below normal. Average temperatures across the Suncoast were 2 to 4 degrees under climatological means. The average of 60.1 at Tampa ranked

in the top third coldest all time, and was the coldest in nearly a decade (1993). The culprit for the chill was frequent frontal passages. The coldest periods were at the beginning (1st through 3rd), middle (15th through 17th, and just after Christmas (26th through 29th).

Freezes and frosts occurred often in December, but were confined to the north Suncoast from interior rural Pasco County north through Levy County. Hard freezes, defined as temperatures in the mid 20s for at least three hours over a large area, did not occur. Table 5 at right shows the events.

3/Frost	29 to 32
16/Freeze	27 to 31
17/Frost	29 to 32
22/Frost	31 to 32
29/Freeze	25 to 30